DOCUMENT RESUME

ED 348 646 CS 010 991

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TITLE Vocabulary Enrichment: Technology to the Rescue!
PUB DATE 92
NOTE 15p.
PUB TYPE Guides - Classroom Use - Teaching Guides (For Teacher) (052)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Computer Assisted Instruction; Databases; Elementary Education; *Prefixes (Grammar); *Suffixes; Teaching Methods; *Vocabulary Development; Vocabulary Skills
IDENTIFIERS Words

ABSTRACT

Computer technology allows students to experiment with word usage and create their own meaningful words. Traditionally, students have acquired new words through reading them in context, analyzing the structure of new words, or using the dictionary. Drills in any of these techniques can be ineffective unless students are actively engaged in the learning process. Computers have that engagement power to draw students into the word learning mode. The most powerful vocabulary learning technique is a combination of contextual analysis along with structural analysis. Computer technology allows teachers to build databases of prefixes, roots, and suffixes, drawn from concurrent classroom reading and writing. Students can then combine word parts to create actual dictionary words. If certain combinations do not exist, the computer can direct the student to an alternate possibility. By limiting the number of possibilities for each database (for example, three prefixes, three roots, three suffixes), teachers can control the number of possible combinations. By building many separate databases, students have infinite numbers of words to enhance their reading and writing. (Two figures representing possible computer responses to students' input are included; 16 references are attached.) (Author/RS)

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VOCABULARY ENRICHMENT: TECHNOLOGY TO THE RESCUE!

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Running Head: VOCABTECH

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Abstract

Computer technology today allows students to experiment with word usage and create their own meaningful words. Traditionally, students have acquired new words through reading them in context, analyzing the structure of new words, or using the dictionary. Drills in any of these techniques can be ineffective unless students are actively engaged in the learning process. Computers have that engagement power to draw students into the word learning mode. The most powerful vocabulary learning technique is a combination of contextual analysis (what does the word mean in a particular setting) along with structural analysis (what does each word part mean or where have I seen this word part used before?). Computer technology allows teachers to build databases of prefixes, roots, and suffixes, drawn from current classroom reading and writing. Students can then combine word parts to create actual dictionary words. If certain combinations do not exist, the computer can direct the student to an alternate possibility. By limiting the number of possibilities for each database (for example, three prefixes, three roots, three suffixes), teachers can control the number of possible combinations. By building many separate databases, students have infinite numbers of words to enhance their reading and writing.

Vocabulary Enrichment: Technology to the Rescue!

As the Association for Childhood Education International (ACEI) celebrates a century of service to children, it is appropriate to look at past, present, and future trends in vocabulary development.

A lesson from the past: Stauffer (1942) identified a list of prefixes that should be taught in the elementary grades, based on the Thorndike list of 20,000 words which elementary students should know. A lesson from the present: White, Sowel and Yanagihara (1989) concluded that the active use of word-part clues could enrich student vocabularies after third grade. They concluded that learning just nine of the most frequently used prefixes and ten suffixes in the middle elementary years gives students the power to figure out many new words.

A lesson from the future: Technology can further enhance student word acquisition power. First, a computer program can assess the contextual and structural analysis skills of individual students. A program can also allow students to "create" new words by combining prefixes, suffixes, and roots and then defining the new terms. This kind of experimentation frees students to analyze the new words they encounter in context, to "predict" what a definition will be based on previous experience with the word part clues in the new term.

Although reading and writing are both skills that require more than knowledge of a number of word meanings, reading comprehension and the ability to write well are both related to word knowledge. Reading and word knowledge seem to be related in that the reader must possess "networks of related associations" for the subject of the reading material (Johnston 1982). The stronger the word knowledge the greater the reading comprehension.

Mere knowledge of definitions does not necessarily suggest a conceptual understanding of a word, yet definitions allow readers to call up appropriate schema to apply to a word in context (Schwartz and Raphael 1985). There is further evidence to suggest that better readers make better writers, and conversely that good writers are generally good readers.

This relationship among word knowledge, reading comprehension, and writing justifies direct vocabulary instruction. Teaching words and definitions will allow students to read those particular words, but teaching word-learning strategies gives students the capability of reading more texts and understanding far more words (Nagy, Anderson, and Herman 1987; Stahl and Fairbanks 1986). In addition, increased word knowledge improves writing clarity.

Word Teaching Strategies

There are several generally accepted categories of word-learning strategies. These categories include contextual analysis, structural or morphemic analysis, and dictionary use. Many texts suggest a hierarchy of approaches from contextual analysis to structural analysis to dictionary use (Vacca and Vacca 1989).

Using Contextual Clues

Although contextual analysis is the ideal approach to reading comprehension, there are problems with teaching contextual analysis with materials other than the actual text with which a student is working. "Inappropriate instruction" often destroys the potential of learning to use contextual analysis (Stahl, Brozo and Simpson 1987). Exercises which teach students how to use contextual analysis are too often "contrived" (Brozo and Simpson 1989). and actual textbooks are often "lean" in their use of context clues (Schatz and Baldwin 1986).

Besides problems with the text itself, the reader's background limits the extent to which the context is meaningful. Typically, there is little transfer of skills from one context to another between subject areas. There are several factors which limit the use of context: the reader's experience, proximity of contextual clue to unfamiliar word, and a definite connection

between the unknown word and the context which clarifies it (Deighton 1970).

Using Structural Analysis

A second word attack strategy, structural analysis, enables readers to determine word meanings by learning definitions for affixes, prefixes and suffixes. There is general agreement that teachers should concentrate first on those that occur most frequently in the language. There is further agreement that direct instruction rather than opportunistic instruction is desirable (White, Sowell and Yanagihara 1989; Amoriel and Hofler 1986).

An argument to support direct instruction in structural analysis comes from the fact that as students begin to encounter more reading material around the fourth grade, much of the new vocabulary comes from words with a prefix, suffix or both such affixes (Nagy and Anderson 1984; White, Sowell, and Yanagihara 1989). Structural analysis allows a reader who encounters an unknown word to limit feasible definitions by approaching the whole word and identifying its parts (Page 1975). Readers who use structural analysis along with context have the most effective word attack strategy available to good readers (Vacca and Vacca 1989).

Using the Dictionary

Typically, teachers and linguists suggest use of the dictionary as a third word attack strategy, less effective than

either contextual or structural analysis of new words. Readers often encounter new words in situations where no dictionary exists. Certainly, the ability to locate new words through dictionary use is important, but it is not the strategy that fluent, metacognitive readers rely on when they encounter new words.

Method

Computers can be used to build a database containing combinations of prefixes, roots, and suffixes that students can use to analyze words. This database also enables students to create combinations of words that might not be found in the dictionary. A program allows students to retrieve information from the database.

By selecting two prefixes (de and re), three roots (pair, spir, and trus), and two suffixes (tion and able), students can "create" a total of twelve possible combinations or "words." These combinations are accessible from the computer database. Some are actual words, spelled exactly as the combinations allow or with slight variations in spelling. See FIGURE 1. Other combinations might form nonsense words which do not exist. When this occurs the program notifies the student that such a word probably does not exist. For words that do exist the program

provides examples of the chosen word used in context.

For example, if a student selects the prefix (re), the root (pair), and the suffix (able), the computer program will generate a screen displaying the chosen combination RE-PAIR-ABLE along with an analysis of the parts of the combination:

RE = OVER, AGAIN
PAIR = TWO THINGS TAKEN TOGETHER
ABLE = CAN DO SOMETHING

A message will be displayed:

THIS WORD CAN BE FOUND IN THE DICTIONARY.

An example of the word in context will be displayed:

THE TOY WAS SO BADLY BROKEN THAT IT WAS NOT REPAIRABLE.

Also displayed will be the word spelled out in a standard form:

THE TOY WAS SO BADLY BROKEN THAT IT WAS NOT REPARABLE.

If the student selects the combination RE-PAIR-TION, the program will display and analyze the parts of the word, and a message will inform the student that the word can NOT be found in the dictionary. In this case the program suggests a word that is meaningful and can be found in the dictionary: RE-PAIR. The substitute word is then used in context:

WE FOUND THE ABANDONED HOUSE IN POOR REPAIR.

A student who selects RE-SPIR-TION will see an analysis of the word, but with the word correctly spelled as RESPIRATION accompanied with a context message (See FIGURE 2):

ARTIFICIAL RESPIRATION IS OFTEN ADMINISTERED
TO ACCIDENT VICTIMS WHO ARE NO LONGER BREATHING
ON THEIR OWN.

Students might discover interesting words by selecting the combination RE-TRUS-TION. The program will process the combination and display the word RETRUSION followed by the context example:

RETRUSION IS THE DENTAL TREATMENT PROCESS OF
MOVING THE TEETH BACKWARD TO STRAIGHTEN THEM.

Implications for Practice

Computer technology allows students the freedom to experiment individually with affixes to create new words. This experimental, creative thinking about words then transfers to actual practice in use of textbooks. Using computer technology also allows students to experiment with word parts to create new words. This kind of exercise "frees" students to predict the definitions of actual new vocabulary which they encounter in context.

The possible combinations of prefixes, roots, and suffixes are almost endless. As students progress in their reading and writing, new databases can provide complementary word study to enhance language learning abilities.

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FIGURE 1

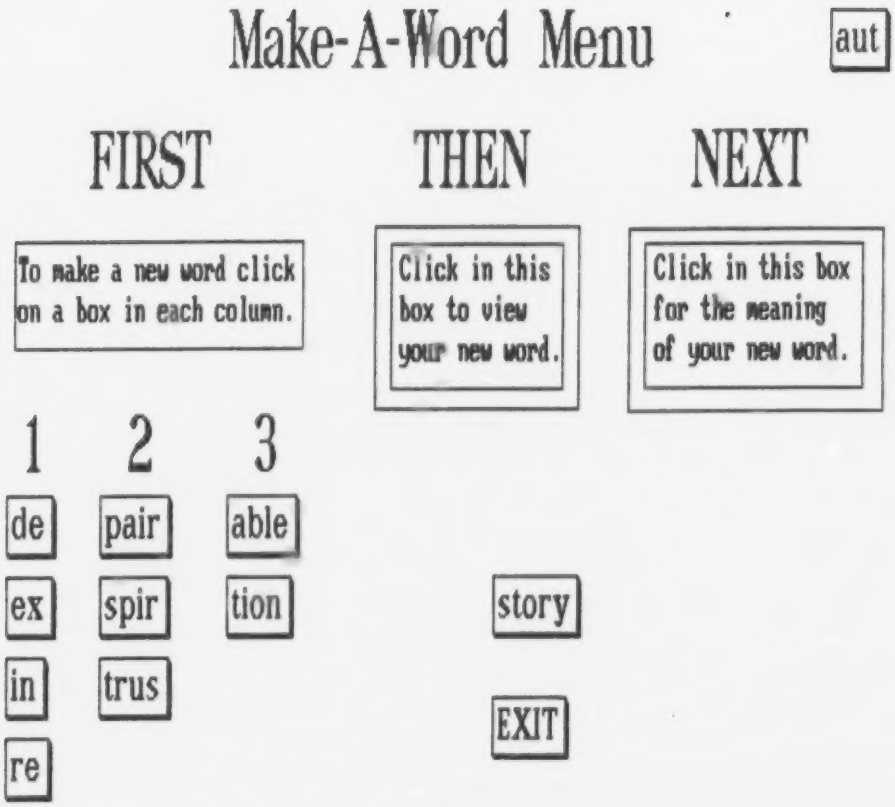
Make-A-Word Menu
aut
FIRST
THEN
NEXT
To make a new word click on a box in each column.
Click in this box to view your new word.
Click in this box for the meaning of your new word.
1
2
3
de
pair
able
ex
spir
tion
in
trus
re
story
EXIT

FIGURE 2

This is a word you can find in your dictionary.
RESPIRATION
To explore the word click in the number boxes.
1
2
3
WORD?
READ?
MENU?
Artificial RESPIRATION is needed to revive people or animals who have stopped breathing.